MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2021 / 2022

PBC0016–BASIC COMPUTING AND PROGRAMMING

(Foundation in Engineering)

9 AUGUST 2022
9.00 a.m. - 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **FIVE** printed pages with **FOUR** questions.
2. Answer **ALL** questions.
3. Write your answers in the Answer Booklet.

QUESTION 1

(a) Describe how people use computers in the following field:

(i) Education
(ii) Finance
(iii) Healthcare

[2 + 2 + 2 marks]

(b) State **THREE (3)** categories of computer users.

[3 marks]

(c) Define the term 'bit' and explain how a series of bits represents data?

[4 marks]

(d) Table Q1(d) below lists three components that can be found in a system unit. For each of these components, describe their function and predict what would happen if they stop working.

[12 marks]

Table Q1(d): Main components of a system unit

Component	Function	Possible Problem
Random Access Memory (RAM)		
Read Only Memory (ROM)		
Arithmetic Logic Unit (ALU)		

QUESTION 2

(a) Computer technology has addressed computing requirements for those who have physical limitations. Suggest **ONE (1)** input/output device option for the following physically challenged users:
(i) Visually-impaired user
(ii) Hearing-impaired user
(iii) Mobility-impaired user

[6 marks]

(b) Some users choose cloud storage instead of storing data locally on hard disk.
(i) What is cloud storage?
(ii) State **THREE (3)** advantages of cloud storage.

[2 + 3 marks]

Continued ....

(c) In the context of operating system, briefly explain the following terms:
(i) Multitasking
(ii) Multiprocessing
(iii) Multiuser

[6 marks]

(d) A computer running Microsoft Windows 10 usually stores the Operating System (OS) in hard disk or solid state drive, rather than storing it in the Random-Access Memory (RAM). Explain the reason why this is done so.

[4 marks]

(e) Calculate the amount of storage needed (in GB) to store a 2-hour video if 10 seconds of video is approximately 5 MB.

[4 marks]

Question 3

(a) Describe the purpose and composition of an IP address. Can we use an IP address to determine a computer or device's location? Explain your answer.

[2 + 3 marks]

Figure Q3: Wireless Technologies

(b) Figure Q3 shows two technologies that have been used for wireless communications: Near Field Communication (NFC) and Bluetooth.

(i) Distinguish between Bluetooth and NFC technology.

[4 marks]

(ii) Based on your answer in part (i), which technology is more suitable for mobile payment (paying goods and services)? Justify your answer.

[4 marks]

(c) Distinguish between streaming and non-streaming audio. Name **ONE (1)** file format for each of them.

[6 marks]

(d) Why is it necessary to perform data compression on graphics, audios and videos? Describe the **TWO (2)** main techniques used for data compression.

[6 marks]

Continued ....

QUESTION 4

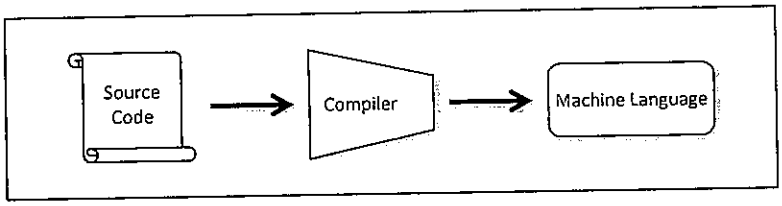

Figure Q4(a)

(a) The diagram in Figure Q4(a) shows the most basic process to produce a computer program. Briefly describe the following components:

(i) Source code [2 marks]
(ii) Compiler [2 marks]
(iii) Machine language [2 marks]

(b) Write a complete C program that prints out the following output:
(Note: you must use `for` statement in your program)

```
1 ++++
2 ----
3 ++++
4 ----
5 ++++
6 ----
7 ++++
8 ----
9 ++++
10 ----
Total: 55
```

[10 marks]

(c) The following program takes in the ages of person X and person Y and compares to see who is older as well as calculate the age difference. Complete the source code so that it produces the sample output as shown in Figure Q4(c).

Note:
- You do not have to rewrite the entire source code, just the lines that are missing.
- Output statements should follow the sample output exactly. Marks will be deducted for any deviations.

[9 marks]

```
#include i)_____

ii)_____
{
      int x,y;
      printf("Enter age of the person X:\n");
      iii) _____
      iv) _____
      scanf("%d",&y);
      v) _____
      if ( vi) ___)
      {
            printf("Y is older than X by %d years.\n",y-x);
      }
      else if (vii) _____)
      {
            printf("X is older than Y by %d years.\n",x-y);
      }
      else
      {
            viii) _____
      }
      ix) _____ 0;
}
```

```
Enter age of the person X:
20
Enter age of the person Y:
25
X is 20 years old while Y is 25 years old.
Y is older than X by 5 years.
```

```
Enter age of the person X:
20
Enter age of the person Y:
20
X is 20 years old while Y is 20 years old.
X and Y are same age.
```

Figure Q4(d)

End of Paper